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Land Capacity Analysis in Maple Valley, WA

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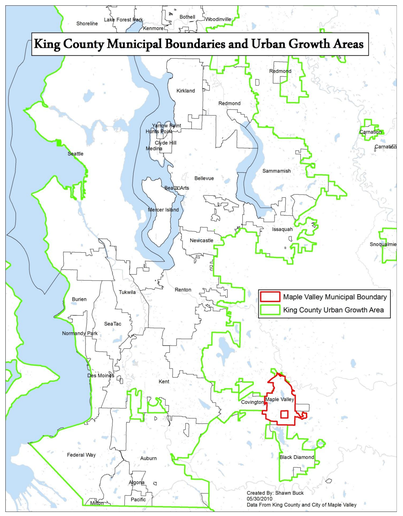
Land Capacity Analysis, What's That?

Washington State's Growth Management Act (GMA), adopted in 1993, affects the Puget Sound Metropolitan area which includes the six major counties, King, Pierce, Snohomish, Thurston, Kitsap and Skagit. Curbing Urban sprawl and growth are the main focus of the GMA. One of the required pieces associated with the GMA is a land capacity analysis, which is updated every five years. The analysis takes into account zoning, developments and population forecasts. The state uses the results to determine whether each county is achieving its growth goals during the current twenty year planning period. Underutilized land is a component of the capacity analysis and is used to determine future development potential, or, as it is called, to determine the land capacity.

Study Area



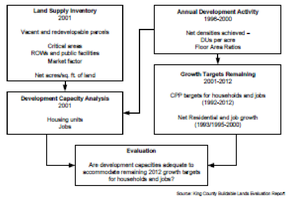
The City of Maple Valley, which is located in South East King County, was incorporated in 1997. Its current population is around 22,000 within the city limits, and upwards of around 50,000 in the surrounding areas. The Tahoma School District serves the greater Maple Valley area with five elementary schools, three junior highs and one high school. The city covers 5.6 square miles of land, three lakes (Lake Wilderness, Pipe Lake and Lake Lucerne) and many naturally protected areas within its boundaries. The city is young, but there is not much room for growth and development outside of the city limits due to the urban growth boundary. Comprehensive planning and careful development within the city are crucial for its development into the future.

Objectives/Methods

My objective was to complete an updated land capacity analysis for the City of Maple Valley. During consultation with the class. I decided that creating a model for this project would be beneficial for Maple Valley and surrounding cities within King County. The model that I would design for this project would require the use of a programming language, such as Python, however, some models would not require computer programming skills. In the future I am planning to learn more about designing models with Python, but for now finishing the project was a priority. My new objectives became determining the previous development in Maple Valley during the past five years and finding the underutilized land within the city to calculate the development capacity.

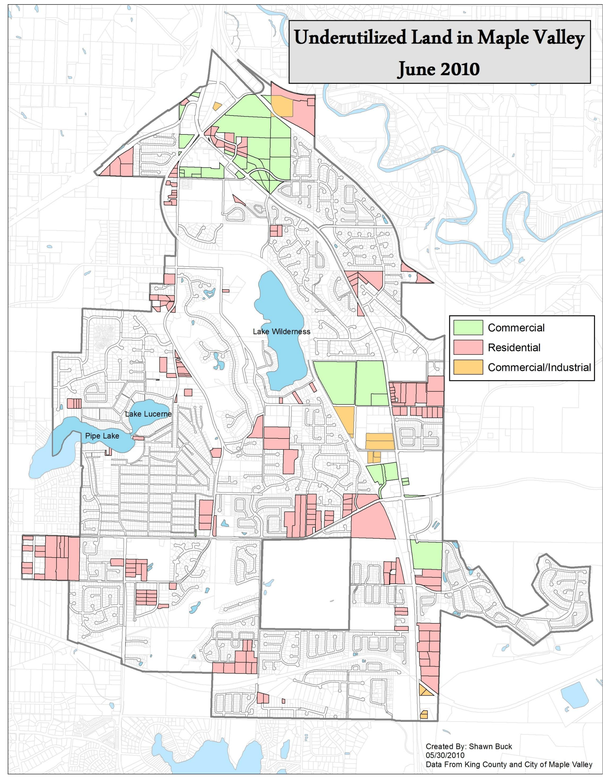
Figure 1

Elements of a Buildable Lands Analysis and Evaluation



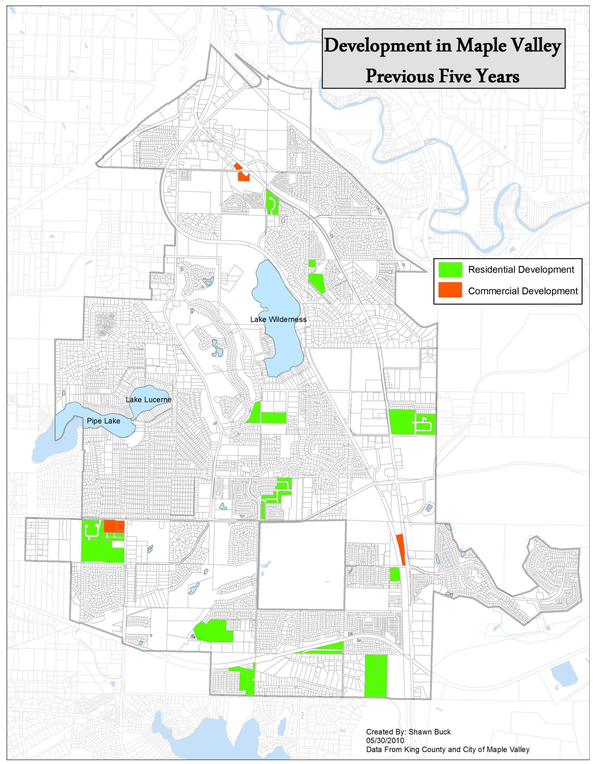
To be able to accomplish those goals I needed to acquire data from Maple Valley. I received from them a file geodatabase that contained all published spatial data from King County. I used this information to create my own file geodatabase for the data that was specific to the city. I put clipped King County data as well as a couple of layers I received from the city, such as zoning and plat information in the database. Next, I acquired a list of building permits from the associate planner dating back the previous five years, from there I would be able to determine plats that were built within the desired time frame. I used this information to build an overlay analysis to determine underutilized land within all zoning districts. I did some "select by location" and "summary statistical analysis" to find the data that I needed. Finally, I created an excel table to put the key pieces of data into for the final layout of the project. Figure 1 (above) shows a general layout of how the analysis is done to King County standards.

Mapped Results

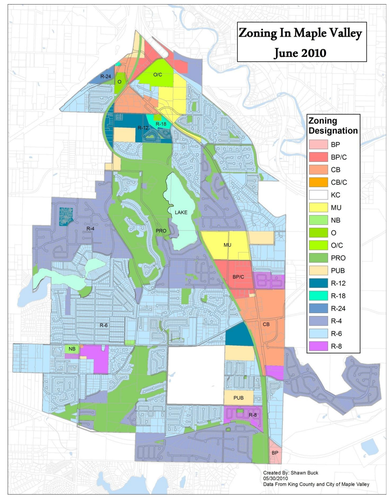


The map to the left shows underutilized land determined to be fit for redevelopment based on zoning and current use factors within the City of Maple Valley. This map was made with a current assessor report from the assessor's website in King County. Land was deemed underutilized if it was zoned for another purpose than its current use and if it could be subdivided into smaller tracts. There may be other factors in place to keep this land from being used to its full potential, such as a no development clause in a title deed.

The map to the right shows the development patterns in Maple Valley during the last five years. Residential plats have been developed faster than commercial plats due to a stronger housing demand than a commercial development demand within the city. This city is for commuters who work outside of the city, commonly known as a "bedroom community." Growth goals have already been exceeded for residential development, but still requires growth in commercial development.



Purpose



Maple Valley has been growing over the past ten years and its development capacity is slowly decreasing. This analysis shows how the current zoning is affecting the built environment and provides the Community Development Department with the information they need to pass on to the county when the project is complete. This project was suggested by the community development director as a possible analysis which could be done for the city to help determine future growth goals. I have had an internship with the City of Maple Valley for the past eight months and wanted my project to be something that could be beneficial to them. Normally this type of work is contracted out, so it is benefitting myself to learn these techniques so that I can use them in my future endeavors.

Chart Results

Zoning	Gross Acres	Critical Areas Acres	Net Unconstrained Acres	Future ROW Pct	Future Public Purpose Pct	Net Buildable Acres	Market Factor Pct	Net Available Buildable Acres	Dus Per Net Acre	Floor Area Ratio	Sq. Ft. Per Employee	Employee Per Acre	Housing Capacity	Employment Capacity
Vacant Land														
Business Park	1.72	0	1.72	2%	2%	1.65	10%	1.49		0.16	850	0.020		12
Business Park/Conditions	27.87	0	27.87	2%	2%	26.76	10%	24.08		0.16	850	0.020		197
Community Business	26.5	0	26.5	2%	2%	25.44	10%	22.90		0.23	500	0.011		459
Neighborhood Business	0.14	0	0.14	2%	2%	0.13	10%	0.12		0.23	500	0.011		2
Office	3.04	0	3.04	2%	2%	2.92	10%	2.63		0.5	350	0.008		163
R-12(12 Domestic Units per Acre)	24.03	0	24.03	5%	10%	20.43	0%	20.43	12				245	
R-4	48.4	19.7	28.7	18%	10%	20.66	15%	17.56	6				105	
R-6	46.3	0	46.3	18%	10%	33.34	15%	28.34	7				198	
R-8	4.58	0	4.58	18%	10%	3.30	15%	2.80	8				22	
Multiple Use	76.86	0	76.86	5%	10%	65.33	10%	58.80						
Residential (35%)	26.90	0	26.90			22.87		20.58	12				247	
Commercial (65%)	49.96	0	49.96			42.47		38.22		0.35	500	0.011		1165
Redevelopable Land														
Business Park	0.98	0	0.98	2%	2%	0.94	15%	0.80		0.16	850	0.020		7
Community Business	16.59	0	16.59	5%	2%	15.43	15%	13.11		0.23	500	0.011		263
Office With Conditions	34.7	0	34.7	10%	2%	30.54	15%	25.96		0.5	350	0.008		1615
R-12(12 Domestic Units per Acre)	4.47	0	4.47	5%	5%	4.02	30%	2.82	12				34	
R-18(18 Domestic Units per Acre)	0.68	0	0.68	18%	10%	0.49	30%	0.34	18				6	
R-4	12.39	0	12.39	18%	10%	8.92	30%	6.24	6				37	
R-6	185.32	0	185.32	18%	10%	133.43	30%	93.40	7				654	
R-8	4.17	0	4.17	18%	10%	3.00	30%	2.10	8				17	
Multiple Use	22.36	0	22.36	5%	10%	19.01	15%	16.16						
Residential (35%)	7.826	0	7.826			6.65		5.65	12				68	
Commercial (65%)	14.534	0	14.534			12.35		10.50		0.35	500	0.011		320
Total Capacity on Vacant Land													818	2000
Gross Capacity on Redevelopable Land													816	2205
Minus existing DU's and Jobs (estimated)													150	200
Net Capacity on Redevelopable Land													666	2005
Plus Development Capacity in Pipeline													500	125
Total Development Capacity													**1985**	**4129**

Acknowledgements and Work Cited

I appreciate all that the City of Maple Valley has done for me, this internship has taught me valuable skills and lessons that have helped me grow as an individual and as a young professional. I want to thank Greg Corradini, Viveka Lazor and John Strandberg for creating an environment that was fun and easy to learn in. I would not have been able to do the project without their help. I would like to thank Matt Kelley for showing me how to develop a project from beginning to end and helping get through some of the road blocks encountered along the way.

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